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Product Information

TROGAMID® myCX eCO

MICROCRYSTALLINE, PERMANENTLY TRANSPARENT POLYAMIDE

TROGAMID® myCX eCO is a microcrystalline transparent polyamide for the manufacture of parts in the optical industry, like lenses according the injection molding procedure. TROGAMID® myCX eCO is set up with production technology using maximal saving potential for CO_2 emission up to 50%.

TROGAMID® myCX eCO is supplied as spherical pellets in moisture-proof packaging.

The results shown have been generated from a low number of production lots. Therefore, they are preliminary and not yet the result of a statistical evaluation. Therefore they must not be used to establish specifications. Pigmentation may affect values.

Key Features

Industrial Sector
Sustainable, Optics, Sports and Lifestyle

Sustainability
eCO

Processing
Injection molding, Extrusion

Optics
Transparent, High gloss, X-ray transparent

Resistance to
Heat (thermal stability), Hydrolysis / hot water, UV / light / weathering, Fatigue resistance

Conformity
Food contact

Additives
Unfilled

LCA-values	dry	Unit	Test Standard
LCA name of certificate	TROGAMID® myCX eCO	-	ISO 14040, 14044
LCA certifier	TÜV Rheinland	-	ISO 14040, 14044
Blue water consumption	**17.1**	kg	ISO 14040, 14044

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Global Warming Potential incl. bio. C incl. LUC	**4.4**	kg CO_2 eq./kg	ISO 14040, 14044
Global Warming Potential excl. bio. C incl. LUC	**5.4**	kg CO_2 eq./kg	ISO 14040, 14044
Land use (ReCiPe 2016)	**0.4**	Annual crop eq. y	ISO 14040, 14044

Mechanical properties ISO	**dry / cond**	**Unit**	**Test Standard**
Tensile modulus	**215000 / 216000**	psi	ISO 527
Tensile strength	**8560 / 9140**	psi	ISO 527
Yield stress	**8560 / 9140**	psi	ISO 527
Yield strain	**8 / 7**	%	ISO 527
Stress at 50% strain	**6090 / 5660**	psi	ISO 527
Stress at break	**9430 / 8700**	psi	ISO 527
Nominal strain at break, tB	**180 / 185**	%	ISO 527
Charpy impact strength, +23°C	**N / N**	ftlb/in^2	ISO 179/1eU
Charpy impact strength, -30°C	**N / N**	ftlb/in^2	ISO 179/1eU
Charpy notched impact strength, +23°C	**5.23 / 5.71**	ftlb/in^2	ISO 179/1eA
Type of failure	**C / C**	-	-
Charpy notched impact strength, -30°C	**5.23 / 5.71**	ftlb/in^2	ISO 179/1eA
Type of failure	**C / C**	-	-
Flexural modulus, 23°C	**212000 / 218000**	psi	ISO 178
Flexural stress at conv. deflection, 23°C	**7540 / 7830**	psi	ISO 178
Flexural strength, 23°C	**11700 / 12800**	psi	ISO 178
Flexural strain at flexural strength, 23°C	**8 / 8**	%	ISO 178
Flexural stress at break, 23°C	**N / N**	psi	ISO 178
Flexural strain at break, 23°C	**N / N**	%	ISO 178

Thermal properties	**dry / cond**	**Unit**	**Test Standard**
Melting temperature	**477 / ***	°F	ISO 11357-1/-3
Glass transition temperature, DSC	**275 / ***	°F	ISO 11357-1/-2

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Temp. of deflection under load A, 1.80 MPa	**216 / ***	°F	ISO 75-1/-2
Temp. of deflection under load B, 0.45 MPa	**248 / ***	°F	ISO 75-1/-2
Vicat softening temperature A, 10 N, 50 K/h	**271 / ***	°F	ISO 306
Vicat softening temperature B, 50 N, 50 K/h	**261 / ***	°F	ISO 306
Coeff. of linear therm. expansion, 23°C to 55 °C, parallel	**5.11E-5 / ***	in/in/°F	ISO 11359-1/-2
Coeff. of linear therm. expansion, 23°C to 55 °C, normal	**5.33E-5 / ***	in/in/°F	ISO 11359-1/-2
Melting Temperature	**477**	°F	ASTM D 3418

Physical properties	dry / cond	Unit	Test Standard
Density	**1.02 / -**	g/cm³	ISO 1183
Water absorption	**3 / ***	%	Sim. to ISO 62
Humidity absorption	**2 / ***	%	Sim. to ISO 62
Shore D hardness	**81**[b] **/ -**	-	ISO 7619-1
Density	**1.02**	g/cm³	ASTM D 792

b: 3 seconds

Optical properties	dry	Unit	Test Standard
Haze	**2.1**	%	ASTM D 1003
Haze Thickness tested	**0.0787**	in	-
Light Transmittance	**92**	%	ASTM D 1003
Light Transmittance Thickness tested	**0.0787**	in	ASTM D 1003

Rheological properties	dry / cond	Unit	Test Standard
Melt volume-flow rate, MVR	**11 / ***	cm³/10min	ISO 1133
Temperature	**280 / ***	°C	-
Load	**2.16 / ***	kg	-
Molding shrinkage, parallel	**0.7 / ***	%	ISO 294-4, 2577
Molding shrinkage, normal	**0.7 / ***	%	ISO 294-4, 2577
Mold temperature	**176 / ***	°F	-

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Melt temperature	**536 / ***	°F	-
Flow length, flow spiral	**11.6**	in	Evonik standard
Flow cross section	**6 x 2**	mm^2	Evonik standard
Mold temperature, flow spiral	**176**	°F	Evonik standard
Melt temperature, flow spiral	**536**	°F	Evonik standard
Injection pressure, flow spiral	**14500**	psi	Evonik standard
Flow length, flow spiral	**18.3**	in	Evonik standard
Flow cross section	**6 x 2**	mm^2	Evonik standard
Mold temperature, flow spiral	**176**	°F	Evonik standard
Melt temperature, flow spiral	**572**	°F	Evonik standard
Injection pressure, flow spiral	**14500**	psi	Evonik standard

Test specimen production	dry	Unit	Test Standard
Injection Molding, melt temperature	**536**	°F	ISO 294
Injection Molding, mold temperature	**176**	°F	ISO 294
Injection Molding, injection velocity	**7.87**	in/s	ISO 294

Characteristics

Applications
Fiber optic cable, (Sun-) glasses, Hygiene and cosmetics, Lenses, Monofilament

Processing
Film extrusion

Special Characteristics
Halogen-free, Phosphorus-free, High impact strength, Low viscosity

Features
optical UV-protection, Weldable, Low birefringence, Non-corrosive, Dishwasher detergents resistant

Regulatory
Food contact 10/2011/EC

Color
Natural color

Delivery form
Spherical pellets